

Serial No. 10/722,432
Docket No. YOR920030378US1 (YOR.489)

REMARKS

Entry of this Amendment is proper under 37 CFR §1.116, since no new claims or issues are raised. Although Applicants disagree with the Examiner's position in the rejection currently of record, the independent claims have been amended to clarify the present invention.

Claims 1-30 are all the claims presently pending in the application. Claims 25 and 26 are withdrawn pending resolution of the propriety of the restriction requirement, to be pursued once allowable subject matter of the examined claims is determined.

It is noted that Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Applicants gratefully acknowledge that claims 4, 6, 16, 18, 21, 22, and 28 would be allowable if rewritten in independent form. However, Applicants respectfully submit that all of the claims are allowable.

Claims 1-3, 5, 7, 9, 12, 14, 19, 24, and 27-29 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,084,295 to Horiuchi et al. Claim 23 stands rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,294,897 to Notani et al.

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Horiuchi, further in view of US Patent Publication US 2004/0182911A1 to Chia et al. Claims 10 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Horiuchi, further in view of US Patent 3,840,169 to Steranko et al.

Claim 13 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Horiuchi, further in view of US Patent Publication US 2001/00154900A1 to Lee.

Claims 15, 17, and 30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Horiuchi, further in view of Notani et al. Claim 20 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Horiuchi, further in view of US Patent 4,555,052 to Kurtz et al.

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

As described and defined in, for example, claim 1, the present invention is directed to a method of making an electronic interconnection. For a signal line to be interconnected, a

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plurality of bonding wires is used in a configuration that provides a controlled impedance effect.
Both a signal current and a return current are conducted by the plurality of bonding wires.

The conventional method of wire bonding, as described on page 2 of the specification, beginning at line 2, inherently represents a parasitic inductance that limits bandwidth signals when a single bonding wire is used for a signal. This problem has been addressed in various methods, including the use of flip chip and ball grid concepts or filling the transition region with a high dielectric constant material such as an epoxy containing a ceramic. However, these conventional methods are not always applicable and can be expensive to implement.

The claimed invention, on the other hand, introduces the entirely different concept of using a plurality of bonding wires for a specific signal. By appropriately configuring this plurality of bonding wires, the plurality of bonding wires provides a controlled impedance effect for that specific signal line. In practice, for any given signal connection, a typical configuration might use one bonding wire to carry the signal current and the other bonding wire to carry the return current, which can represent ground for a single ended signal and the complementary signal for a differential pair.

II. THE WITHDRAWAL OF CLAIMS 25 AND 26

The Examiner has made final the restriction for claims 25 and 26. Applicants decline to cancel these claims at this time, since a Petition to withdraw this restriction will be filed once the allowable subject matter of the active claims is established. However, Applicants bring to the Examiner's attention that the record currently fails to reflect a reasonable support for the position that "lead frame or lead-less plural joint forming can make the electronic product", since it is submitted that the plain meaning of the claim language of independent claim 25 requires that the apparatus have "... at least one signal line having a plurality of bonding wires configured to provide a controlled impedance effect for said signal line."

That is, the term "bonding wire" is a term of art that cannot be ignored in the restriction requirement analysis and it will be necessary for the USPTO to provide some evidence that such plurality of bonding wires for a single signal line are used in an apparatus. The mere presence of a controlled impedance effect for a signal line would be insufficient evidence to maintain the restriction unless the plain meaning of the claim language is satisfied wherein it is required that

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bonding wires be used for the signal line and provide the mechanism for the controlled impedance effect.

III. THE 35 USC §112, SECOND PARAGRAPH REJECTION

The rejection for claim 14 under 35 U.S.C. §112, second paragraph, is understood as having been withdrawn.

IV. THE PRIOR ART REJECTIONS

The Examiner alleges that Horiuchi anticipates claims 1-3, 5, 7, 9, 12, 14, 19, 24, and 27-29 and that Notani anticipates claim 23. The Examiner also alleges that Horiuchi, when modified by Chia, renders obvious claim 8, when modified by Steranko, renders obvious claims 10 and 11, when modified by Lee, renders obvious claim 13, when modified by Notani, renders obvious claims 15 and 17, and, when modified by Kurtz, renders obvious claim 20.

Applicants submit, however, that there are elements of the claimed invention which are neither taught nor suggested by Horiuchi or Notani, when properly interpreted. The Examiner maintains the rejection currently of record. Although Applicants continue to disagree that one of ordinary skill in the art would agree with the Examiner's position, the independent claims are amended to address the Examiner's strained interpretation of the cited references.

Applicants submit that the technique in Horiuchi (or, for that matter, any of the prior art currently of record) fails to teach or suggest the method of the present invention of using a plurality of bonding wires configured to provide a controlled impedance effect.

Hence, turning to the clear language of the claims, in Horiuchi there is no teaching or suggestion of: "A method of making an electronic interconnection, said method comprising: for a signal line to be interconnected, using a plurality of bonding wires configured to provide a controlled impedance effect, wherein both a signal current and a return current are conducted by said plurality of bonding wires", as required by independent claim 1. Other independent claims have similar language.

Applicants have also addressed by claim amendments other concerns raised by the Examiner in the Response to Arguments section beginning on page 11 of the Office Action.

Thus, Applicants submit that there are elements of the claimed invention that are not

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taught or suggest by Horiuchi, and, since the rejection currently of record relies upon primary reference Horiuchi for all pending claims, all claims are clearly patentable over Horiuchi. Therefore, the Examiner is respectfully requested to withdraw the rejections based on this reference.

V. FORMAL MATTERS AND CONCLUSION

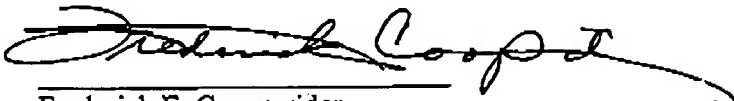
In view of the foregoing, Applicant submits that claims 1-24 and 27-30, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Assignee's Deposit Account No. 50-0510.

Respectfully Submitted,

Date: 5/15/06



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CERTIFICATION OF TRANSMISSION

I certify that I transmitted via facsimile to (571) 273-8300 this Amendment under 37 CFR §1.116 to the attention of Examiner R. Beveridge on May 15, 2006.



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